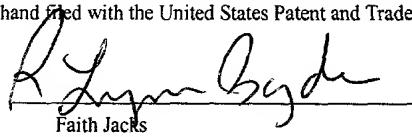


**CERTIFICATE OF HAND DELIVERY**

I hereby certify that this correspondence is being hand filed with the United States Patent and Trademark Office in Washington, D.C. on August 10, 2001.



Faith Jacks

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In the application of:

Shinichi MINEMURA et al.

Serial No.: To be assigned

Filing Date: herewith

For: GAS ADSORPTION SHEET AND AIR-PURIFYING FILTER

Examiner: To be assigned

Group Art Unit: To be assigned

**PRELIMINARY AMENDMENT**

Commissioner for Patents  
Washington, D.C. 20231

Sir:

Prior to the examination of the above-identified application, Applicants respectfully request that the following amendments be entered into the application as follows:

**In the Specification:**

On page one, immediately preceding the heading "BACKGROUND OF THE INVENTION", please add the paragraph:

This application is a division of Serial No. 09/305,100, filed May 5, 1999.

**In the Claims:**

Please amend the claims as follows:

Please cancel claims 1-9.

10. A gas adsorption sheet comprising:

a granular activated carbon-containing sheet comprising a granular activated carbon having an average particle diameter of 60 to 600  $\mu\text{m}$ , a supporting fiber with a fiber diameter of 15  $\mu\text{m}$  or more for fixing the granular activated carbon in contact with it, and an adhesive fiber which contributes to shape retention, wherein the granular activated carbon-containing sheet has a first surface zone containing no granular activated carbon and integrally formed through fibers on a first surface, and a granular activated carbon-sedimenting zone on a second surface; and an air-permeable sheet.

Please cancel claims 15 and 16.

17. (Amended) An air-purifying filter obtained by forming a gas adsorption sheet having a granular activated carbon-containing sheet and an air-permeable sheet into a shape of pleats or wave, said granular activated carbon-containing sheet comprising:

a granular activated carbon having an average particle diameter of 60 to 600  $\mu\text{m}$ ,

a supporting fiber with a fiber diameter of 15  $\mu\text{m}$  or more for fixing the granular activated carbon in contact with it, and

an adhesive fiber which contributes to shape retention,

wherein said granular activated carbon-containing sheet has small pores that allow air to substantially permeate the carbon-containing sheet in a thickness direction, said granular activated carbon-containing sheet has a surface zone containing no granular activated carbon and integrally formed through fibers on one surface, and a granular activated carbon-sedimenting zone on a second surface, and wherein said air-permeable sheet is laminated on the second surface of the granular activated carbon-containing sheet.

18. (Amended) An air-purifying filter obtained by forming a gas adsorption sheet having a granular activated carbon-containing sheet and an air-permeable sheet into a shape of pleats of wave, said granular activated carbon-containing sheet comprising:

a granular activated carbon having an average particle diameter of 60 to 600  $\mu\text{m}$ ,  
a supporting fiber with a fiber diameter of 15  $\mu\text{m}$  or more for fixing the granular activated carbon in contact with it, and

an adhesive fiber which contributes to shape retention,

wherein said granular activated carbon-containing sheet has small pores that allow air to substantially permeate the carbon-containing sheet in a thickness direction, said granular activated carbon-containing sheet has a surface zone containing no granular activated carbon and integrally formed through fibers on one surface, and a granular activated carbon-sedimenting zone on a second surface, and wherein said air-permeable sheet is laminated on the second surface of the granular activated carbon-containing sheet and is provided with a cover sheet in the form of a non-woven fabric, woven fabric, or net.

Please cancel claims 19 and 20.

Please add new claims 21-27, as follows:

21. The gas adsorption sheet according to claim 10, wherein the granular activated carbon-containing sheet is integrally formed by wet bonding using a water-swelling fiber as the adhesive fiber.

22. The gas adsorption sheet according to claim 10, wherein an outer surface area of the supporting fiber is not more than  $1 \text{ m}^2/\text{g}$ , a fiber length thereof is from 3 to 20 mm and a density thereof is from 0.8 to 1.7 g/cc.

23. The gas adsorption sheet according to claim 10, wherein the granular activated carbon-containing sheet contains the granular activated carbon in an amount of 30 to 80% by weight based on the total weight thereof.

24. The gas adsorption sheet according to claim 10, wherein the granular activated carbon-containing sheet is provided with small pores that allow air to substantially permeate the carbon-containing sheet in a thickness direction.

25. The gas adsorption sheet according to claim 10, wherein an average open area per one pore of the small pores is from 0.5 to 3 mm<sup>2</sup>.

26. The gas adsorption sheet according to claim 10, wherein the number of the small pores is from 1 to 20 per 1 cm<sup>2</sup> of the granular activated carbon-containing sheet.

27. The gas adsorption sheet according to claim 10, wherein a porosity of the small pores is from 3 to 10%.

**REMARKS**

Claims 1-9, 15, 16, 19 and 20 have been cancelled. New claims 21-27, which are consistent with original claims 3-9 have been added. Claims 10-14, 17, 18, and 21-27 are pending. Claims 10, 17 and 18 have been amended to more clearly define applicants invention.

No new matter has been added.

All claims are in condition for allowance and early action and a notice thereof are solicited.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with markings to show changes made".

In the event that the transmittal letter is separated from this document and the Patent and Trademark Office determines that an extension and/or other relief is required, applicants petition for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no. 427972000110. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

Dated: August 10, 2001

By:

Respectfully submitted,



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Jonathan Bockman  
Registration No. 45,640

Morrison & Foerster LLP  
2000 Pennsylvania Avenue, N.W.  
Washington, D.C. 20006-1888  
Telephone: (202) 778-1601  
Facsimile: (202) 263-8396

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**In the Claims:**

Please amend the claims as follows:

Please cancel claims 1-9.

10. (Amended) [The] A gas adsorption sheet [according to claim 1, which further comprises] comprising:

a granular activated carbon-containing sheet comprising a granular activated carbon having an average particle diameter of 60 to 600  $\mu\text{m}$ , a supporting fiber with a fiber diameter of 15  $\mu\text{m}$  or more for fixing the granular activated carbon in contact with it, and an adhesive fiber which contributes to shape retention, wherein the granular activated carbon-containing sheet has a first surface zone containing no granular activated carbon and integrally formed through fibers on a first surface, and a granular activated carbon-sedimenting zone on a second surface; and  
an air-permeable sheet [in addition to the granular activated carbon containing sheet].

Please cancel claims 15 and 16.

17. (Amended) An air-purifying filter obtained by forming a gas adsorption sheet having a granular activated carbon-containing sheet and an air-permeable sheet into a shape of pleats or wave, said granular activated carbon-containing sheet comprising:

a granular activated carbon having an average particle diameter of 60 to 600  $\mu\text{m}$ ,  
a supporting fiber with a fiber diameter of 15  $\mu\text{m}$  or more for fixing the granular activated carbon in contact with it, and  
an adhesive fiber which [mainly] contributes to shape retention,  
wherein said granular activated carbon-containing sheet has small pores that allow air to substantially permeate the carbon-containing sheet in a thickness direction, said granular activated carbon-containing sheet has a surface zone containing no granular activated carbon and integrally formed through fibers on one surface, and a granular activated carbon-sedimenting zone on a second surface, and wherein said air-permeable sheet is laminated on the second surface of the granular activated carbon-containing sheet.

18. (Amended) An air-purifying filter obtained by forming a gas adsorption sheet having a granular activated carbon-containing sheet and an air-permeable sheet into a shape of pleats of wave, said granular activated carbon-containing sheet comprising:

a granular activated carbon having an average particle diameter of 60 to 600  $\mu\text{m}$ ,  
a supporting fiber with a fiber diameter of 15  $\mu\text{m}$  or more for fixing the granular activated carbon in contact with it, and

an adhesive fiber which [mainly] contributes to shape retention,  
wherein said granular activated carbon-containing sheet has small pores that allow air to substantially permeate the carbon-containing sheet in a thickness direction, said granular activated carbon-containing sheet has a surface zone containing no granular activated carbon and integrally formed through fibers on one surface, and a granular activated carbon-sedimenting zone on a second surface, and wherein said air-permeable sheet is laminated on the second surface of the granular activated carbon-containing sheet and is [said air-permeable sheet being further] provided with a cover sheet in the form of a non-woven fabric, woven fabric, or net.

Please cancel claims 19 and 20.

Please add new claims 21-27, as follows:

21. The gas adsorption sheet according to claim 10, wherein the granular activated carbon-containing sheet is integrally formed by wet bonding using a water-swelling fiber as the adhesive fiber.

22. The gas adsorption sheet according to claim 10, wherein an outer surface area of the supporting fiber is not more than  $1 \text{ m}^2/\text{g}$ , a fiber length thereof is from 3 to 20 mm and a density thereof is from 0.8 to 1.7 g/cc.

23. The gas adsorption sheet according to claim 10, wherein the granular activated carbon-containing sheet contains the granular activated carbon in an amount of 30 to 80% by weight based on the total weight thereof.

24. The gas adsorption sheet according to claim 10, wherein the granular activated carbon-containing sheet is provided with small pores that allow air to substantially permeate the carbon-containing sheet in a thickness direction.

25. The gas adsorption sheet according to claim 10, wherein an average open area per one pore of the small pores is from 0.5 to 3 mm<sup>2</sup>.

26. The gas adsorption sheet according to claim 10, wherein the number of the small pores is from 1 to 20 per 1 cm<sup>2</sup> of the granular activated carbon-containing sheet.

27. The gas adsorption sheet according to claim 10, wherein a porosity of the small pores is from 3 to 10%.